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1. Reference: Exhibit M

Preamble:

In several instances in the report entitled *Custom Incentive Rate Mechanism Design for Hydro Ottawa* (“the Report”), Pacific Economics Group Research LLC (“PEG”) makes statements regarding the prospect of a utility seeking to avail itself of the Custom IR method for successive rate plans.

For example, page 10 of the Report states the following:

It seems desirable to consider how to make Custom IR more streamlined, incentivizing, and fair to customers while still ensuring that it is reasonably compensatory over time for efficient distributors. Utilities should be encouraged to not stay on Custom IR indefinitely.⁹ Regulators in other jurisdictions (e.g., Alberta and Britain) who championed IR but found themselves saddled with a system that retained too many cost of service features have reconsidered and reformed IR at the end of each round of plans.

⁹ See EB-2018-0165, Decision and Order, December 19, 2019. While approving Toronto Hydro’s Custom IR plan for 2020-2024, the OEB stated:

Toronto Hydro indicated that intervenors are asking the OEB panel to either make changes to generic policy through a particular utility’s rate application or to fetter the discretion of a future panel. Toronto Hydro also submitted that its proposed ratemaking formula is structurally the same as the one approved in its 2015-2019 Custom IR proceeding. The OEB notes that the Custom IR approach taken has required extensive evidence and time to consider the details provided. Toronto Hydro is encouraged to consider an alternative approach in the future that might

1 *be more efficient in establishing the revenue requirement for the base*
2 *year and following years as well as meeting OEB RRF objectives, and*
3 *improving the balance of risk between customers and the utility. Toronto*
4 *Hydro should not assume that future panels will continue to accept*
5 *Toronto Hydro’s current proposed Custom IR framework. (p. 24)*
6

7 Similarly, on page 71 of the Report, PEG declares that “[t]he OEB has evinced mounting
8 frustration with the cumbersome Custom IR option that most large Ontario utilities now
9 request...Custom IR should be streamlined and/or used less frequently.”
10

11 During its discussion on the C Factor and S Factor treatments for capital, PEG offers the
12 following comment on page 74: “A higher markdown could, over time, materially reduce
13 the number of capex plans eligible for Custom IR. It could particularly discourage
14 continuation of Custom IR when utilities are approaching the end of a period of high
15 capex.”
16

17 And page 83 includes a final remark on this topic: “Accumulating experience with
18 Custom IR in Ontario (and analogous mechanisms elsewhere) suggests that it would be
19 desirable to limit its usage. In addition to making its terms less favorable to utilities, the
20 OEB should consider limiting the frequency with which utilities can use Custom IR.”
21

22 **Questions:**

23 a. Please identify any provisions or statements in the OEB’s 2012 report *Renewed*
24 *Regulatory Framework for Electricity Distributors: A Performance-Based*
25 *Approach*, the OEB’s 2016 *Handbook for Utility Rate Applications*, or any other
26 relevant OEB reports or policies that corroborate and/or comport with the
27 aforementioned assertions.
28

29 b. Please cite specific examples of the “mounting frustration” evinced by the OEB
30 with respect to the review of Custom IR rate applications. Please identify the
31 corresponding utility rate case proceedings.

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c. Please explain how the excerpt from the OEB Decision and Order that is quoted in footnote 9 on page 10 of the Report can be interpreted as providing support for the assertion that “[u]tilities should be encouraged to not stay on Custom IR indefinitely.” Please explain why footnote 9 should not be interpreted as the OEB signalling to Toronto Hydro that the utility’s *current* Custom IR framework may not be acceptable to future OEB panels, and should instead be interpreted as the OEB signalling that *any* Custom IR plan put forward by Toronto Hydro may not be acceptable to future panels.

2. Reference: Exhibit M, p. 86

Preamble:

In its discussion on alternative ratemaking treatments of capital in Alberta and California, the Report states the following on page 86: “Some OEB Custom IR guidelines are violated since the capital revenue requirement is unaffected by the industry productivity trend or stretch factor.”

Questions:

a. Please specify which OEB guidelines are purportedly being violated under the approach in question.

3. Reference: Exhibit M, pp. 20-21

Preamble:

In footnote 36 on pages 20-21 of the Report, PEG quotes concerns expressed by OEB Staff regarding aspects of Hydro Ottawa’s 2016-2020 Custom IR.

1 However, PEG makes no mention of the Decision and Rate Order ultimately issued by
2 the OEB panel in the proceeding involving the utility's 2016-2020 Custom IR application.
3 In that Decision and Rate Order, the OEB disagreed with the concerns expressed by
4 OEB Staff and ruled thus: "The OEB finds that Hydro Ottawa's application and the
5 settlement proposal prepared by the parties meet the expectations of the RRFE for a
6 Custom IR. The OEB accepts the settlement proposal and approves the rates and
7 charges that arise from it."¹

8

9 **Questions:**

- 10 a. Please confirm whether PEG agrees with the aforementioned finding from the
11 OEB that Hydro Ottawa's 2016-2020 Custom IR plan was consistent with RRFE
12 expectations.

13

14

15 **4. Reference: Exhibit M, p. 8**

16

17 **Preamble:**

18 PEG recommends that Hydro Ottawa's Custom Price Escalation Formula ("CPEF") be
19 modified such that it includes a 0.27% base OM&A productivity trend. This figure is
20 derived using U.S. distributor OM&A productivity trend data from 2007-2017.

21

22 **Questions:**

- 23 a. Please explain how the use of U.S. distributor data is informed and justified by
24 the discussion of the pros and cons of Ontario and U.S. data, which is included in
25 the Appendix to the Report.

26

27

28 **5. Reference: Exhibit M, p. 8**

29

30 **Preamble:**

31 ¹ Ontario Energy Board, *Decision and Rate Order*, EB-2015-0004 (December 22, 2015).

1 PEG recommends that the OEB not support the use of a fixed CPEF for purposes of
2 Hydro Ottawa's Custom IR rate plan, particularly in light of the uncertainty surrounding
3 the impacts of the COVID-19 pandemic.
4

5 **Questions:**

6 a. Please confirm whether it is PEG's view that a variable CPEF requiring annual
7 updates from Hydro Ottawa is consistent with the OEB's policy, as stated in the
8 *Handbook for Utility Rate Applications*, to minimize the number of annual updates
9 required under a utility's Custom IR plan.
10
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14 **6. Reference: Exhibit M, p. 79**

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16 **Preamble:**

17 Page 79 of the Report states the following: "The capital variance account is the single
18 leading cause of the weak capex containment incentives in Hydro Ottawa's proposed
19 plan."
20

21

22 **Questions:**

23 a. In light of this statement, please confirm whether PEG would still recommend
24 application of the CPEF formula to capital revenue for rate adjustment purposes,
25 if Hydro Ottawa were to correct the perceived deficiencies with the capital
26 variance account.
27

28

29

30 **7. Reference: Exhibit M, pp. 71-89**

31

32 **Preamble:**

33 On pages 71-89 of the Report, PEG examines a range of alternative ratemaking
34 treatments for capital.
35

36

1 **Questions:**

2 a. Please clarify whether it is PEG's view that these alternative ratemaking
3 treatments for capital are compatible with existing OEB ratemaking policies, and
4 as such, can be readily applied by the OEB in this and other proceedings.

5
6 b. Please clarify whether PEG believes that these alternative proposals do not
7 require further analysis and/or stakeholding by the OEB in a generic context
8 (e.g. by way of a generic hearing or other suitable policy consultation) prior to
9 their implementation.

10

11

12 **8. Reference: Exhibit M, p. 7**

13

14 **Preamble:**

15 PEG states that one of its four larger concerns with Clearspring's research is that
16 Clearspring included Ontario data from pre-MIFRS years in the sample. However, page
17 48 of the Report states that pre-MIFRS years were used in PEG's capital cost
18 benchmarking model. Clearspring understands that PEG's rationale for not using
19 pre-MIFRS years is that the accounting methodology for many Ontario distributors
20 underwent modifications by 2013, and these modifications may have impacted
21 classification between capital and OM&A.

22

23 **Questions:**

24 a. Please explain why PEG did not include the pre-MIFRS years for the Ontario
25 data in the total cost and OM&A models, but did include those years in the capital
26 model.

27

28 b. Does PEG believe that the accounting change impacted the reported capital
29 data?

30

- 1 c. Will the capital costs for the Ontario observations after 2013 be constructed from
2 data from two different accounting standards?
3
- 4 d. In light of Hydro Ottawa's response to interrogatory OEB-30, which showed that
5 the shift to MIFRS had a minimal impact on Hydro Ottawa's cost data, what
6 external evidence can PEG provide to explain why excluding a large portion of
7 the Ontario distribution utility data is justified?
8
- 9 e. Please reproduce Table 6 and 7 found on pages 55 and 57 of the Report,
10 respectively, by simply including the pre-MIFRS Ontario observations starting in
11 2006 to be consistent with the capital cost model.
12
- 13 f. Please reproduce Table 8 found on page 59 of the Report by excluding the
14 pre-MIFRS Ontario observations to be consistent with the total cost and OM&A
15 models.
16
- 17 g. Please reconcile the number of observations for the total cost model and the
18 OM&A model. The OM&A model appears to have three more observations than
19 the total cost model.
20
- 21 h. Please explain why PEG excluded Hydro One Networks data prior to 2013 from
22 the sample, despite the company not shifting to MIFRS. Please reproduce Table
23 6 and 7 by simply including the pre-2013 data for Hydro One Networks into the
24 dataset.
25

26
27 **9. Reference: Exhibit M, p. 7; working papers**
28

29 **Preamble:**

30 PEG states that one of its four larger concerns is that the calculation of capital costs for
31 the utilities in Clearspring's econometric study sample is inaccurate. Clearspring uses

1 2002 as the capital benchmark year for the Ontario distributors. PEG uses 1989 as the
2 capital benchmark year for Hydro Ottawa, but stated that it did not have time or budget
3 to modify the benchmark year for the other Ontario distributors.

4

5 **Questions:**

6 a. Please verify that PEG used the 2002 capital benchmark year for the other
7 Ontario distributors.

8

9 b. Please verify that, in using the 1989 capital benchmark year for Hydro Ottawa,
10 PEG had to estimate the capital data throughout those years by assuming a
11 retirement rate that was applied to all years between 1989 and 2002 and
12 interpolating some of the gross plant data that was not available.

13

14 c. What retirement rate for plant from 1989 to 2002 did PEG assume to estimate
15 the capital data for Hydro Ottawa? Please provide evidence that Hydro Ottawa's
16 retirement rate was at this assumed level between 1989 and 2002.

17

18 d. Please verify that, if Hydro Ottawa's retirement rate is not actually at the PEG
19 assumed rate, this would negatively impact the accuracy of the PEG capital cost
20 estimations for Hydro Ottawa.

21

22 e. Please provide a table comparing Hydro Ottawa's capital costs from 2013-2025
23 using the 1989 benchmark year and the 2002 benchmark year.

24

25 f. Please provide a table comparing the annual values for the implicit capital stock
26 deflator, the power distribution Handy Whitman Index for the North Atlantic
27 region, and the final index used by PEG that was applied to the Ontario
28 distributors.

29

30 g. Please verify that PEG in its calculations for Hydro Ottawa assumed plant
31 additions for the utility were exactly the same in all years from 1989-1997, and

1 then exactly the same again from 1997-2002. Please explain why PEG believes
2 that this is a realistic assumption.

3
4

5 **10. Reference: Exhibit M, p. 7**

6
7

Preamble:

8 PEG states that one of its four larger concerns is that Clearspring's benchmarking model
9 does not properly address the complex issue of density.

10
11

Questions:

12 a. In light of the fact that the Clearspring model included a density variable and
13 density squared variable, please explain how Clearspring's approach did not
14 properly address the issue of density.

15
16

b. Please verify that PEG essentially added two interaction terms to address density
(A*N and A*D) relative to the approach undertaken by Clearspring.

17
18

c. Please verify that the A*N variable is statistically insignificant.

19
20

21 d. On page 38 of the Report, PEG states that Clearspring addressed PEG's prior
22 concerns by reducing the number of quadratic and interaction terms. However, in
23 PEG's alternative benchmarking model it adds three interaction variables (A*N,
24 A*D, and PCTOH*PCTFOREST). Please reconcile the addition of three
25 interaction terms, given that PEG had a large concern in the Toronto Hydro
26 research that Mr. Fenrick included too many interaction terms to address urban
27 congestion, based on the theory that adding these variables reduced the degrees
28 of freedom.

29

- 1 e. Can PEG provide the underlying principle that it believes should be followed by
2 the benchmarking researcher regarding the inclusion of interaction and quadratic
3 terms?
4
- 5 f. Please provide the area value used for Hydro One Networks' Distribution in
6 PEG's dataset and explain how PEG determined that value.
7
- 8 g. Did PEG modify any other utility observations besides Hydro One Networks for
9 the area served variable?
10
- 11 h. Is PEG concerned that one of the three outputs in its model is static and cannot
12 grow or change over time?
13
- 14 i. In light of the prior discussions on how to properly measure density in the
15 distribution industry, given the lack of consistent data on line lengths and the
16 identified issues with service territory area, does PEG have any other ideas or
17 suggestions on how to better measure customer density? In PEG's opinion,
18 would some other physical measure be better than the service area (such as the
19 number of distribution substations or some other possible measure of density)?
20
- 21 j. Why is density thought of by PEG as an output rather than a business condition?
22 What distinguishes it from other business conditions such as forestation or
23 advanced metering infrastructure ("AMI") meters?
24
25

26 **11. Reference: Exhibit M, pp. 8, 43, and 61-63; PEG working papers**
27

28 **Preamble:**

29 PEG states that the OM&A productivity trend of the U.S. distributors is 0.27% and that
30 this should form the basis for the productivity growth target for the OM&A revenue for
31 Hydro Ottawa.

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In addition, in its discussion of Hydro Ottawa’s proposed 0% total factor productivity (“TFP”) target, PEG states the following on page 43 of the Report: “We also wish to challenge the notion that a 0% base productivity target is necessarily appropriate for Hydro Ottawa.”

However, there is nothing in the ensuing discussion in the Report that addresses the arguments provided by Hydro Ottawa in the utility’s response to part (g) of interrogatory OEB-6. In this response, Hydro Ottawa provides reasons in support of the use of the 0% TFP – in particular, the determination by the OEB in a 2013 report that the appropriate industry-wide TFP for Ontario distributors was zero, and the affirmation of the 0% TFP in the context of proceeding EB-2017-0049 (i.e. Hydro One Networks’ 2018-2022 Custom IR distribution rate application).

Questions:

- a. In examining PEG’s working papers, it appears that a different peak demand variable was mistakenly used in the productivity research, but was not used by PEG in the total cost benchmarking research. This is an understandable error, seeing as PEG used the variables provided by Clearspring with very similar variable names. In the total cost model, PEG uses the five-year rolling maximum peak demand variable labeled as “maxpk5” in the dataset as the output variable. However, near the end of the code, when PEG is calculating the growth in the output index for the PFP trend, the output variable is switched to the maximum peak demand since 2005, labeled as “maxpk05”. Please verify or correct Hydro Ottawa’s understanding of this mismatch in output definitions between the benchmarking and productivity studies.

- b. Please reproduce Table 9 found on page 62 of the Report using the same peak demand output definition (maxpk5) as PEG used in the three cost benchmarking models.

- 1 c. Did PEG take a simple average when calculating the productivity trend for the
2 industry, or conduct an aggregation or weighted average approach, similar to
3 what was conducted for the 4th Generation IRM productivity research? If the
4 simple average approach was used, please explain the deviation from the 4th
5 Generation IRM procedure.
6
- 7 d. Please verify that every other Custom IR electricity distribution application
8 approved by the OEB to date has included a 0.0% productivity factor.
9
- 10 e. Please verify that the Price Cap IR productivity factor of 0.0% was determined on
11 the basis of PEG's research on the Ontario industry productivity trend in the 4th
12 Generation IRM proceeding.
13
- 14 f. Why did PEG believe it was most appropriate to base the productivity factor only
15 on the Ontario industry in the 4th Generation IRM?
16
- 17 g. Why does PEG now believe that it is most appropriate to base the productivity
18 factor for Hydro Ottawa only on the U.S. industry?
19
- 20 h. Please confirm whether PEG's challenging of the 0% TFP target takes into
21 account the arguments provided by Hydro Ottawa in response to part (g) of
22 interrogatory OEB-6.
23
- 24 i. Please confirm whether PEG agrees or disagrees with the OEB's determinations
25 from its 2013 report and its Decision and Order in EB-2017-0049 in support of
26 the 0% TFP.
27
- 28 j. Does PEG believe that the issues of MIFRS and the appropriate sample for
29 productivity measurements would be better addressed in a generic proceeding,
30 rather than in this proceeding, on account of the limited time and budget
31 available to conduct thorough research on these important issues?

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- k. Please include the one Ontario distributor (Hydro One Networks) that did not shift to MIFRS accounting in PEG’s productivity research, and report the new OM&A productivity trend for 2007-2017.
- l. On what basis did PEG choose the start year of 2007 for the OM&A productivity trend?
- m. Does PEG consider this 10-year trend a long-run productivity trend?
- n. Please list any account exclusions that PEG made to the OM&A measure in the U.S. productivity trend.

12. Reference: Exhibit M, pp. 8, 32-35, 62

Preamble:

PEG states that cost theory and index logic support use of a scale escalator (G) in a revenue cap index. Hydro Ottawa put forth a G that was substantially reduced from its projected customer growth. Rather than projected customer growth of over 1%, the company is only requesting a G of 0.4%. In Section 3 of the Report, PEG provides the indexing rationale that supports escalating the revenue cap by the growth in customers. PEG also provides Table 1 on page 35 which implies that the markdown in G that the utility proposed would be the largest markdown of the listed approved revenue caps that included a scale escalator.

Questions:

- a. Please verify or correct the statement in the preamble above.
- b. Absent Hydro Ottawa’s proposal of 0.4%, what would PEG’s recommended G factor be in this case?

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- c. In PEG’s opinion, would a scale escalator equal to the growth in customers be a reasonable one?

13. Reference: Exhibit M, p. 41

Preamble:

PEG states that Clearspring’s estimation procedure did not correct the parameter estimates for autocorrelation and was therefore inefficient.

Questions:

- a. Please provide an academic journal article citation which clearly states that the popular Driscoll-Kraay method used by Clearspring is inefficient on unbalanced panel datasets of the sort used in this research in comparison to the estimation method used by PEG.
- b. Did PEG use a feasible generalized least squares (“FGLS”) estimation approach for each of the three cost models?
- c. Did PEG use the same modeling estimation approach that it used in the recent Hydro One Networks Transmission application?
- d. Will this be PEG’s standard estimation approach for future benchmarking models?
- e. Does PEG believe that its parameter estimates are more accurate because of this procedure, relative to those of Clearspring? If so, please provide a citation detailing this assertion.

1 f. Please provide a step-by-step explanation of PEG's estimation procedure with
2 steps on how to replicate it using STATA.

3

4 g. It is noted that the time dimension in the dataset (T) is smaller than the
5 cross-sectional dimension (N). On this matter, Hydro Ottawa and Clearspring
6 wish to draw attention to the following journal article, in which the author states
7 the following:

8

9 *In an early attempt to account for heteroskedasticity as well as for*
10 *temporal and spatial dependence in the residuals of time-series*
11 *cross-section models, Parks (1967) proposes a feasible generalized*
12 *least-squares (FGLS)-based algorithm that Kmenta (1986) made popular.*
13 *Unfortunately, however, the Parks-Kmenta method, which is implemented*
14 *in Stata's xtgls command with option panels(correlated), is typically*
15 *inappropriate for use with medium- and large-scale microeconomic*
16 *panels for at least two reasons. First, this method is infeasible if the*
17 *panel's time dimension, T, is smaller than its cross-sectional dimension,*
18 *N, which is almost always the case for microeconomic panels. Second,*
19 *Beck and Katz (1995) show that the Parks-Kmenta method tends to*
20 *produce unacceptably small standard error estimates.²*

21

22 Furthermore, in that same section, the author states the following:

23

24 *Therefore, Driscoll and Kraay's approach eliminates the*
25 *deficiencies of other large-T-consistent covariance matrix*
26 *estimators such as the Parks-Kmenta and the PCSE approach,*
27 *which typically become inappropriate when the cross-sectional*
28 *dimension N of a microeconomic panel gets large.*

29

30 ² Daniel Hoehle, "Robust standard errors for panel regressions with cross-sectional dependence", *The Stata Journal*,
31 Volume 7, Number 3, page 284 (2007).

1 PEG appears to use the “PCSE” command in STATA (discussed in the paragraph
2 above) for its estimation approach. In light of these findings, please explain why
3 PEG believes its estimation approach is more appropriate than the Driscoll-Kraay
4 approach taken by Clearspring.

5

6

7 **14. Reference: Exhibit M, p. 41-43**

8

9 **Preamble:**

10 PEG provides a list of smaller concerns regarding Clearspring’s total cost benchmarking
11 research.

12

13 **Questions:**

14 a. Did PEG use the same percentage forestation values and variable in its model as
15 Clearspring used? If yes, how does PEG rationalize listing this as a concern, but
16 then using the same variable? Should this also then be a concern with respect to
17 PEG’s work? If no, please indicate how the new variable was constructed and
18 explain why PEG believes it is superior to the one used by Clearspring.

19

20 b. Did PEG adjust the number of gas customers in the percent electric variable? If
21 yes, please list the changes made to PEG’s dataset in comparison to the
22 Clearspring dataset.

23

24 c. PEG indicates that including pensions and benefits in the Clearspring cost
25 definition is one of its smaller concerns. Did PEG include the pensions and
26 benefit expenses in its cost definition? If yes, should this also be a concern with
27 respect to PEG’s work?

28

29 d. PEG mentions that Clearspring’s data was incorrectly mean-scaled. Please
30 describe in greater detail what PEG believes was performed incorrectly by

1 Clearspring. Seeing as all of the data is divided by the same denominator, will
2 this have a meaningful impact on the study results?

3

4 e. Did PEG use Hydro Ottawa forecasted plant additions that are different than
5 what Clearspring used? If yes, please provide the source and data used by
6 PEG.

7

8 f. Did PEG update the Conference Board inflation forecasts to benchmark Hydro
9 Ottawa's forecasted costs? If yes, please provide the annual growth rate
10 percentages used for labour, non-labour, and capital input prices.

11

12 g. PEG mentions a concern regarding Clearspring using the U.S. GDPPI and
13 adjusting for the Canadian PPP for the non-labour input price for the Ontario
14 distributors. It is Clearspring's understanding that PEG uses the Canadian
15 GDPIPI for final domestic demand for the Ontario distributors. Please verify or
16 correct that understanding.

17

18 h. How is the levelization that accounts for the price and currency differences
19 between the Canadian GDPIPI and U.S. GDPPI conducted by PEG?

20

21

22 **15. Reference: Exhibit M, p. 43**

23

24 **Preamble:**

25 PEG mentions that the Ontario data has limitations for the accurate measurement of
26 productivity trends. These purported limitations include the recent benchmark year for
27 capital cost calculations, the recent transition to MIFRS accounting, and the fact that
28 pension and benefit expenses are not readily excluded from such studies.

29

30 **Questions:**

- 1 a. What expense category exclusions to the OM&A cost definition did PEG make in
2 its OM&A productivity research for the U.S. industry?
3
4 b. Please verify that the benchmark years for the capital cost calculations for the
5 Ontario industry are approximately seven years older now than when PEG
6 conducted and supported its productivity research for purposes of the 4th
7 Generation IRM.
8
9 c. Has PEG reevaluated and changed its opinion regarding the robustness of its
10 research for 4th Generation IRM, due to the issues raised in the current
11 proceeding? Are these same issues relevant for the OEB's annual total cost
12 benchmarking exercise?
13
14 d. Does PEG now believe that the productivity target for Price Cap IR should be
15 based on a U.S. only dataset, rather than the Ontario only productivity result
16 produced by PEG in 4th Generation IRM?
17
18

19 **16. Reference: Exhibit M, p. 46-47**

20
21 **Preamble:**

22 PEG states that it employed a critical value that is appropriate for a 75% confidence
23 interval.
24

- 25 a. How did PEG determine this critical value?
26
27 b. It is Clearspring's understanding that past PEG studies have used a critical value
28 of 90%. Please verify or correct this understanding. Please provide an
29 explanation.
30
31 c. Will this be PEG's standard critical value for future benchmarking models?

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17. Reference: Exhibit M, p. 49-53

Preamble:

PEG provides its econometric cost models.

Questions:

- a. PEG did not include the quadratic variable for percent congested urban that was included in Clearspring's total cost model. PEG did, however, include this quadratic variable in its OM&A model. Why was this variable excluded from PEG's total cost and capital cost model?
- b. PEG did not include the extreme weather variable that was included in Clearspring's model and was included in PEG's total cost benchmarking research in the Hydro One Networks Distribution case. Why was this variable excluded from all three of PEG's cost models?
- c. The standard deviation of elevation is included in PEG's total cost and OM&A model but not the capital cost model. Why was this variable excluded from the capital cost model?
- d. Please describe the process that PEG undertook in developing the OM&A and capital cost models. Please explain why the three models contain different variables, and whether this was a systematic process of elimination starting from the total cost model or some other approach.

18. Reference: Exhibit M, p. 64-89

Preamble:

1 PEG discusses several other issues related to the design of Hydro Ottawa's Custom IR
2 plan.

3

4 **Questions:**

5 a. Given the combination of the negative TFP found within the Ontario distribution
6 industry by both PEG and Mr. Fenrick, the productivity factor set at 0.0%, and the
7 presence of stretch factors, does PEG believe that Price Cap IR is fully
8 compensatory for the average Ontario distributor?

9

10 b. If the productivity factor was allowed to be negative would this, in PEG's view,
11 reduce either the need for Custom IR or the size of the requested additional
12 capital necessary to operate the utility?

13

14 c. Has PEG conducted any analysis on Hydro Ottawa's capital plan to determine if
15 the capital projects proposed by the utility are necessary and reasonable?

16

17 d. PEG states that there is a risk that Hydro Ottawa will be overcompensated in the
18 future once the capex surge is completed. Does PEG believe that this future risk
19 will be mitigated to some extent by the 0% productivity floor plus the presence of
20 stretch factors based on total cost benchmarking?

21

22 e. After a capex surge, the total cost benchmarking results for the utility will likely
23 worsen as more capital costs enter the analysis. Does PEG believe this imposes
24 a future cost on a utility undertaking a capex surge?

25

26 f. PEG states the following on page 67 of the Report: "Under Hydro Ottawa's
27 proposal, customers therefore would never receive the full benefit of the industry
28 TFP trend, even in the long run and even when it is achievable." Given the
29 productivity factor has been set above the actual industry TFP and stretch factors
30 are asymmetrically set at or above 0%, can PEG provide the basis for this
31 statement?

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- g. On page 73 of the Report, PEG mentions the S factor in the Hydro One Networks Transmission case. Please verify that, based on PEG’s calculations and responses in that case, with a stretch factor of 0.3%, the S factor that achieved parity with ACM and ICM was at or very close to 0.0%.

- h. On page 74 of the Report, PEG mentions the possibility of separating OM&A productivity and Capital productivity, and that this may help alleviate or reduce the need for capital funding above what is provided for in Price Cap IR. Please verify that this statement would only be true in the current context if the capital productivity factor was allowed to go below zero to match the capital productivity trend within the industry.

- i. PEG cites the capital variance account treatment as the single leading cause of the weak capital incentives in Hydro Ottawa’s plan. What percentage would PEG recommend that Hydro Ottawa be allowed to retain if the utility underspends on capex?

- j. PEG mentions on page 87 of the Report a “replex requirement indicator” variable that it has constructed in other research. In PEG’s research on the distribution industry, does PEG believe that aging infrastructure is creating the need for relatively large increases in capex for some utilities?

- k. Please describe how PEG constructed the “replex requirement indicator” variable. Is this variable similar to a type of capital age variable that estimates the average age of the assets on a system?

- l. Did PEG explore calculating this variable for Hydro Ottawa? If not, how would PEG suggest calculating such a variable?